Process Sheet

POSITIVE RECALL
EFFECTIVE 07.06.01 AUTH *ll*

Date: Thursday, 5/31/2007 7:23:16 AM
Kim Johnston

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: STEP *RELEASED 07.06.07* DATE ___
Job Number	: 32718 -1		
Estimate Number	: 12576		
P.O. Number	: N/A	Part Number	: D3562041
This Issue	: 5/31/2007 S.O. No. : N/A	Drawing Number	: D3562 UNDER REVIEW *Split*
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : LARGE FAB ASSY	Drawing Revision	: A
Previous Run	: 29411	Material	: N/A
Written By	:	Due Date	: 6/11/2007 Qty: 1 Um: Each
Checked & Approved By	: *07.05.31*		
Comment	: Est Rev:A New Issue 06-11-09 JLM		

Additional Product

Job Number:

Seq. #:	Machine Or Operation:	Description :
1.0	D2622120C	Extrusion

Comment: Qty.: 1.0000 Each(s)/Unit   Total : 5.0000 Each(s)

Qty	Part #	Description	Batch:
1	D2622-120C	Extrusion	B31984

Check Material for any Dents or Defects

07.06.07

Seq. #:		
2.0	D2734	206 Step Endplate

Comment: Qty.: 2.0000 Each(s)/Unit   Total : 10.0000 Each(s)
Pick:

Qty	Part Number	Description	Batch
2	D2734	End Cap	B29340 = 1 B30883 = 9

07.06.07

Seq. #:		
3.0	LARGE FAB 1	LARGE FABRICATION RESOURCE 1

Comment: LARGE FABRICATION RESOURCE 1

1- Cut D2622 extrusion as per Dwg D3562   *07/06/07*   *(5)*

2- Deburr and bevel ends for welding   *07.06.07*

3- Weld (1) end cap as per Dwg D3562 & QSI 004. Inspect for foreign objects as per QSI 024.
A/R   Aluminum Rod M102756

4- Grind end cap welds flush as per Dwg D3562   *07.06.07*

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services	Drawing Name: STEP WELDMENT
Job Number: 32718	Part Number: D3562041

Job Number:

Seq. #:	Machine Or Operation:	Description:
4.0	QC5 /9	INSPECT WORK TO CURRENT STEP

QC5 √ 07-06-07 (5)

Comment: INSPECT WORK TO CURRENT STEP

Qc9 M 07/06/07

| 5.0 6.0 | SMALL FAB 1 | SMALL & MEDIUM FAB RESOURCE 1 |

debur

Comment: SMALL & MEDIUM FAB RESOURCE 1

& Touch holes Alodine
vP Holes with N/A JM

Drill Rivet holes as per dwg D3562. USING DT 8956

FF 07-06-11

| 8.0 7.0 | QC5 | INSPECT WORK TO CURRENT STEP |

√ 07.06.07 (1)

Comment: INSPECT WORK TO CURRENT STEP

07-02-07

| 5.0 | HAND FINISHING1 | HAND FINISHING RESOURCE #1 |

Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

FF 07-06-07

| 8.0 | QC3 | INSPECT POWDER COAT/CHEMICAL CONVERSION |

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

SB 07/06/07

| 9.0 | D3560041 | ARM WELDMENT |

Comment: Qty.: 1.0000 Each(s)/Unit   Total: 5.0000 Each(s)
ARM WELDMENT   B 32643

FF. 07.06.07

| 10.0 | D3560043 | ARM WELDMENT |

Comment: Qty.: 1.0000 Each(s)/Unit   Total: 5.0000 Each(s)
ARM WELDMENT
Batch: B 32646

FF. 07.06.07

| 11.0 | MS20600AD4W5 | Blind Rivet |

Comment: Qty.: 36.0000 Each(s)/Unit   Total: 180.0000 Each(s)
Blind Rivet Qty (34)   SEE W/O CHANGE
batch: 2012 09 = /34

FF. 07.06.07

Qty (32) SEE W/O CHANGE
FF 07.06.11

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services	Drawing Name: STEP WELDMENT
Job Number: 32718	Part Number: D3562041

Job Number:

Seq. #:	Machine Or Operation:	Description :

12.0 SMALL FAB 1 — SMALL & MEDIUM FAB RESOURCE 1

Comment: SMALL & MEDIUM FAB RESOURCE 1

Rivet legs using Magnabond as per dwg D3562.
Ensure to wipe off any exess magnobond of the step

A/R   Magnabond 6398   Batch: _b103628_   *I.E. 07·06·08*   1

13.0 QC5 — INSPECT WORK TO CURRENT STEP

07·06·08 ①

Comment: INSPECT WORK TO CURRENT STEP

14.0 LARGE FAB 1 — LARGE FABRICATION RESOURCE 1

Comment: LARGE FABRICATION RESOURCE 1

1-Weld Remaining end cap as per Dwg D3562 & QSI 004. Inspect for foreign objects as per QSI 024.   *I.E 07·08·08* 1
A/R   Aluminum Rod _M102756_

2-Grind end cap welds flush as per Dwg D3562   *I.E 07·06·08* 1

15.0 QC9 — VISUAL WELDING INSPECTION

(LH)

Comment: VISUAL WELDING INSPECTION   07/06/11 ①

16.0 QC5 — INSPECT WORK TO CURRENT STEP   (PTO)

Comment: INSPECT WORK TO CURRENT STEP   07·06·11 ① (LH)   Attatched at the back of the w/o.

17.0 POWDER COATING — POWDER COATING   GL   07·06·11 ①

Touch-up Alodine   07·06·08 ①
BK/mL

Comment: POWDER COATING
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

18.0 HAND FINISHING1 — HAND FINISHING RESOURCE #1

Comment: HAND FINISHING RESOURCE #1
Wing Walk as per Dwg D3562 and QSI 005 4.4
Batch: _M104281_   07·06·11 ①

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services	Drawing Name: STEP WELDMENT

Job Number: 32718	Part Number: D3562041	

Job Number:

|||||||||||||||||||||||||||||

Seq. #:	Machine Or Operation:	Description :
19.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION

||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION   *mF 07-06-12.*   ⑪

20.0	PACKAGING 1	PACKAGING RESOURCE #1

||||||||||||||||||||||||||||| *※ SEE W/O CHANGE FOR STEP 19.5* ||||||||||||||||||||||||||||| ⊙ POSITIVE RECALL

Comment: PACKAGING RESOURCE #1
Pick Assembly Kit

A 07/06/12.
U 07-06-12

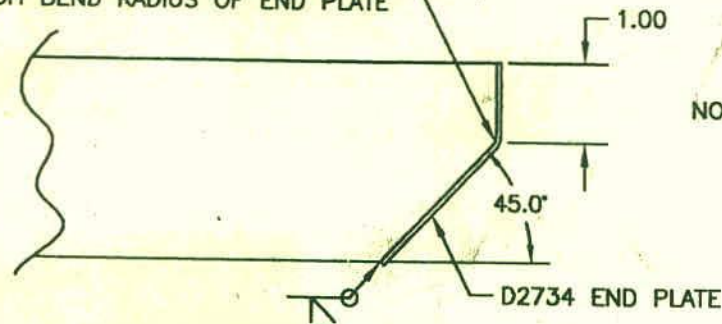**Job Completion**

|||||||||||||||||||||||||||||

POSITIVE RECALL

EFFECTIVE _____ AUTH _____
RELEASED _U_____ DATE _07-06-12_

ROUND CORNER OF EXTRUSION TO
MATCH BEND RADIUS OF END PLATE

1.00

NOTE: ALL WELDS SHALL BE 100%
VISUALLY INSPECTED BY A
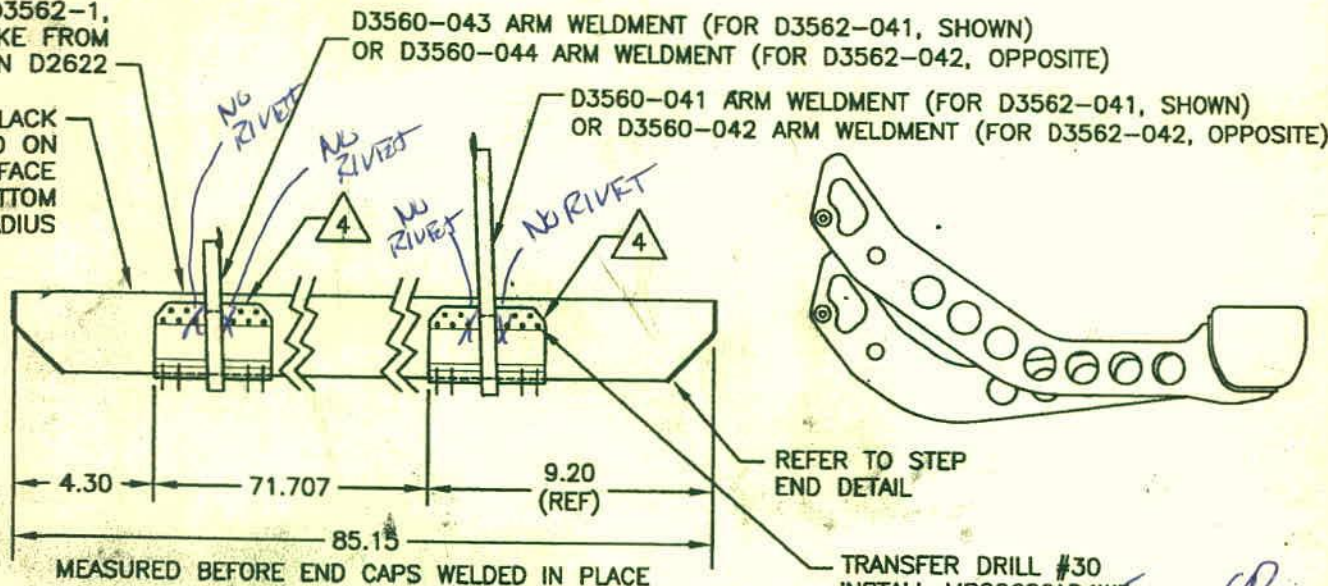QUALIFIED INSPECTOR PER
DART QSI 004

45.0°

D2734 END PLATE

TYPICAL STEP END DETAIL
NOT TO SCALE

WORK ORDER
NO. 32718

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE

D3562-1,
MAKE FROM
EXTRUSION D2622

APPLY BLACK
ANTI-SKID ON
TOP SURFACE
TO BOTTOM
OF TOP RADIUS

D3560-043 ARM WELDMENT (FOR D3562-041, SHOWN)
OR D3560-044 ARM WELDMENT (FOR D3562-042, OPPOSITE)

D3560-041 ARM WELDMENT (FOR D3562-041, SHOWN)
OR D3560-042 ARM WELDMENT (FOR D3562-042, OPPOSITE)

NO RIVET
NO RIVET
NO RIVET
NO RIVET

△4
△4

FWD

4.30   71.707   9.20 (REF)
85.15
MEASURED BEFORE END CAPS WELDED IN PLACE

REFER TO STEP
END DETAIL

TRANSFER DRILL #30
INSTALL MS20600AD4W5
RIVET (36 PLACES), (32)
DEBURR & TOUCH UP HOLES
WITH CHEMICAL CONVERSION
COAT BEFORE RIVETING,
TOUCH-UP RIVET HEADS
WITH PAINT PER
DART QSI 005 4.2

D3562-041 LH STEP ASSEMBLY (SHOWN)
D3562-042 RH STEP ASSEMBLY (OPPOSITE)
1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
2) WELD PER DART QSI 004
3) FINISH:
   AFTER WELDING END PLATES AND PRIOR TO DRILLING/INSTALLING ARM WELDMENTS:
   i) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   ii) POWDER COAT GLOSS WHITE (4.3.5.1) OR GREY SANDTEX (4.3.5.6)
      OR BLACK SANDTEX (4.3.5.7) OR GREEN SANDTEX (4.3.5.8) PER DART QSI 005 4.3
   iii) BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
4) INSTALL ARM WELDMENTS WITH A LAYER OF SIKAFLEX-2417-291 OR PROSEAL 890 OR
   MIL-S-8802 CLASS B2 SEALANT BETWEEN THE ARM WELDMENT AND STEP EXTRUSION
5) ALL DIMENSIONS ARE IN INCHES

MAGNABUND
07.06.07
REF DS EMAIL

RELEASED
07.02.20

	DESIGN BY	GP		DART AEROSPACE LTD
	CHECKED			HAWKESBURY, ONTARIO, CANADA
	APPROVED			
DATE	DRAWN BY	GP		
07.01.15	DRAWING NO. D3562		REV. B
	TITLE STEP ASSEMBLY		SHEET 1 OF 1
			SCALE NTS

| B | 07.01.15 | ARMS NOW RIVETED TO STEP |
| A | 06.09.26 | NEW ISSUE |

Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: June 5, 2007 5:18 PM
To: 'Chris Provencal'
Subject: RE: D3562-041/-042

As we have discussed previously, this is acceptable as long as the Magnabond doesn't break down.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Tuesday, June 05, 2007 11:00 AM
To: David Shepherd (David Shepherd)
Subject: D3562-041/-042

David,

For the D3562-041/-042 step weldment, as discussed. They want to switch from Sikaflex to Magnabond, and powder coat after final assembly.

As part of this change, the D3560-XX arms won't be powder coated, and the D2808 Bushing won't be assembled until after final assembly of the step weldment.

Since this is the first time trying this, we will ensure that the steps are checked after powdercoating in case the Magnabond doesn anything unexpected (eg. bubbling). If we see anything suspect, we will assemble them the old way.

Is this acceptable.

-Chris

No virus found in this incoming message.
Checked by AVG Free Edition.
Version: 7.5.472 / Virus Database: 269.8.9/834 - Release Date: 6/5/2007 2:38 PM

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Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: June 5, 2007 12:26 PM
To: 'Chris Provencal'
Subject: RE: D3560-041/-042/-043/-044

Go ahead.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Tuesday, June 05, 2007 9:55 AM
To: David Shepherd (David Shepherd)
Subject: D3560-041/-042/-043/-044

David,

This is sort of a rush: dwg D3560 Rev.B (step weldment for -033/-034 steps) is not calling up the D2808 Bushing. It is missing the "Press fit D2808 Bushing after powder coat".

We will correct this, but for the time being: is it acceptable to press fit a D2808 Bushing into the D3560-041/-042/-043/-044 as the design originally intended?

-Chris

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06/06/2007

Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: June 7, 2007 3:37 PM
To: 'Chris Provencal'
Subject: RE: D3562-041/-042

As we discussed, I think this change is acceptable without further qualification.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Thursday, June 07, 2007 1:15 PM
To: David Shepherd (David Shepherd)
Subject: D3562-041/-042

David,

For the D3562-041/-042 Step Assembly, we need to remove qty(1) rivet from each D3560-XX Arm weldments attachments for manufacturability. There will be a total qty(34) MS20600AD4 rivets instead of qty(36) per step. The rivet will be removed from the side surface of the step. Remaining shear would be 350 lbs x 16 rivets = 5600 lbs per arm attachments.

-Chris

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Version: 7.5.472 / Virus Database: 269.8.11/838 - Release Date: 6/7/2007 2:21 PM

Dart Aerospace Ltd

WORK ORDER CHANGES

W/O:

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval· QC Inspector·
07.06.11	195	PRESS FIT D2808 AFTER POWDER COAT, 2 PLACES. B/N B28600	FF	07-06.11	2	CP 07.06.11 pv QSI042	[signature] 07.06.12
07.06.11	11	INSTALL QTY (32) MS20660AD4 RIVETS INSTEAD OF 36. REF DS EMAIL	JE	07.06.11		CP 07.06.11 pv QSI042	[signature] 07.06.12

Part No: D3562-041   PAR #: N/A   Fault Category: Prod/FAB DSS MED & SMAL   NCR: (Yes) No   DQA: [✓]   Date: 07/06/12

QA: N/C Closed: [✗]   Date: 07.06.12

WORK ORDER NON-CONFORMANCE (NCR)

NCR: 32718

DATE	STEP	Description of NC Section A	Corrective Action Section B — Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector
07.06.11	14.0	2 rivets were grinded on the heads, when the Magrabend was being removed from the D3560-041 Arm.	[signature] QSI042	- Drill and remove rivets and replace. - Drill a hole in the aft cap to remove debris. - Fill hole with weld & grind flush, per QSI004	JE 07.06.11	[signature] 0706.11	[signature] QSI042	[signature] 0706.11

NOTE: Date & initial all entries

Dart Aerospace Ltd

WORK ORDER CHANGES

W/O:							
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
02.06.11	12	MAGNABOND STEP PRIOR TO POWDER COAT. REF DS EMAIL	*JC* 07.06.11			*CP* 07.06.11 per QS1042	*0.06.12*

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

WORK ORDER NON-CONFORMANCE (NCR)

NCR:								
			Corrective Action	Section B				
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Chris Provencal

From:	David Shepherd [dshepherd@dartaero.com]
Sent:	June 11, 2007 2:33 PM
To:	'Chris Provencal'
Subject:	FW: Request for W/O change D3562-041/-042
Attachments:	wo_change_D3562.jpg

Acceptable deviation.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Monday, June 11, 2007 11:27 AM
To: David Shepherd (David Shepherd)
Subject: Request for W/O change D3562-041/-042

David,

For the D3562-041/-042 step weldment, when doing the actual assembly, it was discovered that the rivets on either side of the arm cannot be installed because of problems fitting the rivet tool. Total number of rivets will not be 32 per step assembly (was 36).

A picture is attaching which shows which 4 rivets are to be removed. Is this acceptable.

-Chris

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Version: 7.5.472 / Virus Database: 269.8.13/843 - Release Date: 6/10/2007 1:39 PM

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11/06/2007